DEPARTMENT OF THE NAVY
CHIEF OF NAVAL EDUCATION AND TRAINING
250 DALLAS ST
PENSACOLA FLORIDA 32508-5220

CNETINST 1500.21A
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CNET INSTRUCTION 1500.21A

Subj: DEVELOPMENT, ACQUISITION AND MANAGEMENT OF INTERACTIVE COURSEWARE (ICW) IN SUPPORT OF INSTRUCTIONAL SYSTEMS WITHIN THE NAVEDTRACOM

Ref: (a) DODINST 1322.20
(b) OPNAVINST 1500.73
(c) Defense Instructional Technology Information System *(DITIS)*
(d) OPNAVINST 5000.50A
(e) MIL-HDBK-1379
(f) MIL-PRF-29612
(g) Navy Interactive Courseware (ICW) Style Guide
(h) NAVEDTRA 130
(I) NAVEDTRA 131
(j) NAWCTSD Navy Training Delivery Assessment Model (TRADAM)
(k) NAVSEALOGCEN Learning Objective Evaluation and Media Selection Tool (LOEMST)
(l) CNO Office of Training Technology (OTT) SEAMLESS PRODUCT INFORMATION, DATA EXCHANGE AND REPOSITORY (SPIDER)
CH-1 (m) NAVAUDSVC P-7520.1 Audit Report 034-97 of 29 Apr 97
(n) OPNAVINST 5290.1A

Encl: (1) Policy and Procedures for Development, Acquisition, and Management of Interactive Courseware

1. Purpose. To establish policy and procedures for the development, acquisition, and management of Interactive Courseware (ICW) within the Naval Education and Training Command (NAVEDTRACOM).

2. Cancellation. CNETINST 1500.21

3. Revision. This instruction does not identify specific additions, deletions, and revisions since it is a major rewrite of the previous instruction. Users must continually review this instruction, assess its utility, and recommend its revision, as necessary, to maintain pace with continual advances in training.

4. Scope.

a. Enclosure (1) covers analysis for most appropriate instructional delivery methodology, and the design, development, and application of ICW within the NAVEDTRACOM. It also describes

ICW policies and responsibilities for the NAVEDTRACOM. These policies and responsibilities have their foundation in references (a) , (b) and (c) .

b. Enclosure (1) does not apply to training devices covered by reference (d).

c. Enclosure (1) does apply to courses developed following guidelines and procedures contained in references (h) and (i), where ICW is but another form of instructional media material (i.e., belonging in the same category as videotapes, films, slides, transparencies, etc.).

d. Enclosure (1) is presented in Information Mapping format for clarity and ease of reading. Sections of this instruction are repeated in enclosure (1) to maintain clarity and functionality within the information mapping format and to facilitate user friendliness.

R. M. SCOTT
Chief of Staff

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INTRODUCTORY INFORMATION

Purpose This instruction describes how to develop, acquire, and manage Navy ICW training within the Naval Education and Training Command (NAVEDTRACOM).

Cancellation CNET INSTRUCTION 1500.21

Revision This instruction does not identify specific additions, deletions, and revisions since it is a major rewrite of the previous instruction.
Users most continually review this instruction, assess its utility, and recommend its revision, as necessary, to maintain pace with continual advances in training and education technology.

Scope

This instruction covers analysis for most appropriate instructional delivery methodology, and the design, development, and application of ICW within the NAVEDTRACOM. This instruction also describes ICW policies and responsibilities for the NAVEDTRACOM. These policies and responsibilities have their foundation in references (a), (b) and (c).

This instruction does not apply to training devices covered by reference (d).

This instruction does apply to courses developed following guidelines and procedures contained in references (h) and(i), where ICW is but another form of instructional media material (i.e., belonging m the same category videotapes, films, slides, transparencies, and so forth).

A) Reference (m) identified overlapping policy requirements between references (b) and (n). It is essential that appropriate media selection tools are utilized during the curricula development process. When such tools are utilized, or when the VI/AV (visual information/audio visual) cost is less than half of the total course cost, reference (b) applies. In all other cases, the training developer must ensure compliance with both references (b) and (n). Training programs include, but are not limited to, computer-based training (CTB), ICW, interactive multimedia instruction (IMI), technical training equipment, simulators and training devices, curriculum authoring, and video teletraining (VTT).

PERTINENT DEFINITIONS

Definitions required to understand this CNETINST

Definitions of selected terms are m enclosure (3) of reference (b), and Part 4 of reference (e). However, the definitions for ICW, ICW Program, and Portability are especially pertinent to this instruction. Their definitions follow:

Interactive Courseware (ICW)

ICW is "computer-controlled courseware that relies on trainee input to determine the pace, sequence, and content of training delivery using more than one type medium to convey the content of instruction. Interactive courseware can link a combination of media, to include but not be limited to; programmed instruction, video tapes, slides, film, television, text graphics, digital audio, animation, and up to full motion video, to enhance the learning process. "

ICW Program

An ICW Program is: "An assembly or series of closely-related ICW lessons and concomitant training materials and documentation that are grouped together under a single course identification number. An ICW program is designed to present users within a given specialty code or series of specialty codes with information on a set of operationally-related tasks or duties. An ICW program comprises one or more lessons (i.e., segments of instruction designed to teach one or more training objectives) which maybe grouped into separate modules that can be taught, measured, and evaluated as a single unit."

ICW Portability

Portability is: "The capability to run courseware and associated application programs without modification on a delivery system other than the one for which they were originally designed."

DoD AND OPNAV DIRECTIVES THIS INSTRUCTION IMPLEMENTS

References (a), (b) and (c) implemented

This instruction implements references (a), (b) and (c) within the NAVEDTRACOM. The first two directives require portability of ICW among potential Department of Defense (DoD) users. The third promotes portability by reporting requirements.

Fores of DODINST 1322.20

DODINST 1322.20, reference (a), concentrates primarily on policy for development and management of ICW by the joint services. Additionally, this directive prescribes responsibilities of the many and varied ICW managers, users and developers. It mandates unlimited government rights to the courseware and software required to execute the ICW.

OPNAVINST 1500.73 Focus

The OPNAV directive, reference (b), discusses requirements for the acquisition, development reporting and management, including life cycle, of ICW. The instruction directs the use of ICW whenever a determination is made that this is the most cost-effective instructional methodology or instructional media. OPNAV 1500.73 reiterates and expands upon the DoD policy regarding payment of royalty fees, license fees, run-time fees or use tax for software used in developing and running the ICW.

Purpose and use of DITIS

Reference (c), DEFENSE INSTRUCTIONAL TECHNOLOGY INFORMATION SYSTEM (DITIS), establishes reporting requirements for ICW. Its purpose is to promote sharing of ICW among DoD components. DITIS seeks to eliminate duplication of ICW by establishing a centralized database where those contemplating developing a particular ICW must check before beginning development. There are also requirements for reporting on ICW during various phases of its life cycle, from beginning to end.

DoD DOCUMENTS PROVIDE EXCELLENT ICW GUIDANCE

Use of DoD documents encouraged	This instruction encourages use of the reference (e), MIL-HDBK-1379 Handbooks, Parts 1 through 4, and MIL-PRF-29612, reference (f), during media selection, and the planning, development, implementation and management of ICW. While DoD developed these documents to support acquisition of training materials by government contract, training activities will want to use them throuqhout the life cycle of an ICW.
MIL-HDBK-1379-1	Part One of reference (e), *HANDBOOK FOR GUIDANCE FOR ACQUISITION OF TRAINING DATA PRODUCTS AND SERVICES,* is useful for defining training product requirements so training activities are more likely to obtain the ICW at reduced cost, while promoting commercial products and practices, and use of the latest technologies.
MIL -H D B K - 1379-2	Part Two of reference (e), INSTRUCTIONAL SYSTEMS DEVELOPMENT/SYSTEMS *APPROACH TO TRAINING AND EDUCATION,* is useful for determining the media best suited for the training situation, whether it is ICW or another media type.
MIL-HDBK-1379-3	Part Three of reference (e), *DEVELOPMENT OF INTERACTIVE MULTIMEDIA INSTRUCTION,* will help program managers and training system users understand acquisition and management requirements associated with squiring ICW. Developers of ICW will find this Handbook useful throughout an ICW project, from planning to completion.
MIL-HDBK-1379-4	Part Four of reference (e), GLOSSARY OF TRAINING TERMS, will enable all involved with ICW, regardless of life cycle phase, to communicate precisely with one another.
MIL-PRF-29612	Reference (f), *PERFORMANCE SPECIFICATION, TRAINING DATA PRODUCTS, GENERAL SPECIFICATION FOR,* will help program managers and training system users evaluate the educational soundness of the final product.

THESE NAVEDTRA DOCUMENTS ARE HELPFUL, TOO

Navy ICW Style Guide is a very useful tool

Using reference (g) during the development process, while not mandated, is highly encouraged. Developers who use referenee (g), *NAVY INTERACTIVE COURSEWARE (ICW) STYLE GUIDE,* throughout the ICW design and development process will know with certainty their finished ICW follows educationally sound practices. ICW developers will also find the Style Guide useful for its suggested practices and conventions that result in enhanced user friendliness of the final ICW product.

If developing ICW from paper-based lessons

References (h) and (i) are procedural manuals primarily intended for development of paper based curriculum materials. Their use is especially recommended when working with a course(s) developed using the manual(s), and the plan is to convert selected lessons to ICW.

NAVEDTRA 130 and 131

Reference (h), *TASK BASED CURRICULUM DEVELOPMENT MANUAL*, and reference (i), *PERSONNEL PERFORMANCE PROFILE (PPP) BASED CURRICULUM DEVELOPMENT MANUAL,* require development of a Training Course Control Document (TCCD) which shows sequence and instructional units of the course and their learning objectives. NAVEDTRA 130/131 also require determination of the most appropriate and cost-effective method(s) for attaining the learning objectives presented in the TCCD. Currently, available technology for media selection acts on the learning objectives of a course; therefore, the TCCD is of primary importance when examining a course for multi-media applications, including ICW.

MEDIA SELECTION TOOLS MAY ADVISE ICW, OTHER MEDIA

The Navy has two excellent Media Selection Tools

The Navy has recently developed and made available references (j) and (k), which represent state of the art training technologies for determining most efficient and cost effective means for training a given set of learning objectives. Both achieve this goaI by looking at the array of human requirements needed for attaining the learning objective(s) (sight, smell, touch, hearing, etc.) and evaluating against the spectrum of currently available media._

TRADAM

Reference (j), *TRAININGDELIVERY ASSESSMENT MODEL (TRADAM),* assists training sponsors, training managers, course developers, and instructors in selecting the most appropriate, advanced training technologies for the cost effective delivery of training.

Analysis needed
Resource savings

- TRADAM does not replace the need for traditional job task/training task analyses
- The TRADAM process allows a quick assessment of the potential for resource savings through the implementation of appropriate training technologies in a course

For those courses where considerable savings potential is identified by TRADAM, developers should perform a complete and thorough training systems requirements analysis prior to any course revision or procurement of training delivery hardware and software.

LOEMST

Reference (k), *LEARNING OBJECTIVE EVALUATION AND MEDIA SELECTION TOOL (LOEMST),* automates learning objective evaluation and media selection during curriculum development, revision or maintenance, regardless of the curriculum's format.

LOEMST offers the following capabilities for the Instructional Designer:

Evaluate, select
Review, update
Select media
Rate objectives
Test questions

- A comprehensive method for evaluating and selecting media needs
- A means to review and update existing media options
- A means for selecting most appropriate media for completing training objectives
- A method for rating learning objectives according to their criticality
- A method for assessing and developing appropriate test questions

ICW is a medium just like any other

Both MST and LOEMST are capable of recommending developmental approaches from the entire spectrum of available training technologies. It is important to recognize ICW is just another media type available for attaining the course, or lesson, objectives. Therefore, the user of either will see that ICW is sometimes recommended and, at times, other media is deemed better suited to the task.

Use of the Navy's OTT SPIDER encouraged

Reference (1), The Navy's Office of Training Technology (OTT) *SEAMLESS PRODUCT INFORMATION, DATA EXCHANGE AND REPOSITORY* (SPIDER) seeks to keeps its users informed of the latest developments in training technology, including ICW, via the INTERNET. The OTT SPIDER is usable by all INTERNET users, whether they are military, government, academia or civilian. Indeed, its connections are worldwide. All CNET training activities should become regular users of the OTT SPIDER. In particular, anyone undertaking an ICW project should, in addition to contacting DITIS (reference c), surf the OTT SPIDER for possible currently existing programs that will satisfy the training requirement. The OTT INTERNET address is: http://www.sc.ist.ucf.edu/ OIT/.

DISCUSSION

Wiser decisions offset reduced resources

Ever-decreasing resources increase the importance of selecting instructional strategies that are most cost effective, and offer best *RETURN ON INVESTMENT (ROI).* New training technologies, such as ICW, can be used in ways that offset scarce dollars. Due to new, easier to use software many training activities will find that they now have the personnel capability for developing ICW.

Training technologies offer hope for reducing training costs

The NAVEDTRACOM must constantly seek ways to replace more costly instructional methods with less costly ones. New training technologies available now, and on the horizon, offer some of the best means for reducing costs. Examples include Video Teletraining, Automated Electronic Classrooms, Learning Resource Centers AND Interactive Courseware.

ICW is often a viable substitute for cost-cutting measures taken to reduce overall costs

Appropriately used, ICW can help the Navy optimize ever-scarcer resources presently committed to established courses; for example: 1) Many lesson topics now requiring instructor presentation can present the same information as effectively by using ICW, thus eliminating the instructor from the classroom or reducing time spent in the classroom; 2) Students can learn the same amount of material in less time, thereby reducing overall course length; 3) Provide the training as a *STEP* (Shipboard Training Enhancement Program) course and either cancel the formal shore-based course or greatly reduce its throughput; 4) Export the training to the job site; 5) Offer the required training *Just In-Time;* 6) Discontinue the formal training course.

Innovations offer ICW development capability to many training activities

Recent advances in computer hardware and software offer a wide range of alternatives to conventional, paper-based training materials. **ICW is one such example of an alternative to paper-based training materials.** Previous versions of this hardware and software were so difficult to learn that their use was severely limited. Those who would have found the development of ICW beyond their capabilities several years ago now have the tools at hand.

Limits on who can develop ICW are gone

It is no longer necessary to limit ICW development to one, or a few, selected activities staffed for the express purpose of developing other than conventional, paper-based training materials, such as ICW. Now, training activities are encouraged to develop their own ICW, following guidelines of this instruction.

Organizational circumstances a factor in which activities can develop ICW

A variety of circumstances affect **Who,** i.e., organization, will develop ICW, and **Where,** i. e., organization site, it will be developed. These include the following contingencies: resources, personnel, facilities, and hardware. These are factors to consider when making the decision whether or not to undertake to develop ICW (or many other training technologies for that matter.)

Factors for consideration before Committing to an ICW Project

Key factors to take into account when considering whether to undertake an ICW development project include some of the following considerations. Expected project duration, and course length of the ICW may determine which NAVEDTRACOM activity, or other source, such as contractor, develops the ICW. If a TRACOM undertakes the development of an ICW project, it wants to ensure those who begin the project are likely to be there at its conclusion.

Expert in curriculum development?

- The availability and expertise of personnel in curriculum design and development

Know the subject matter?

- Their knowledge of the subject under consideration for ICW

Intended Use of ICW?

- The intended use of the ICW, i.e., can many NAVEDTRACOM schools use it, or very few?

Sophistication of product?

- Sophistication of the projected product, i.e., Level Three Or Level Four ICW

Complexity of ICW Project?

- Complexity of the ICW project, i.e., is extensive remediation and/or branching envisioned?

POLICY REGARDING USE OF ICW

Analysis shows when to use ICW

CNET'S policy is to use ICW whenever an analysis shows that ICW is the most cost-effective means of supporting instructors and enhancing the instructional process.

NETPDTC is CNET'S central agent for ICW

CNET designates the Naval Education and Training Professional Development and Technology Center (NETPDTC) as its central agent for coordination of all NAVEDTRACOM ICW development and acquisition, and for transition of ICW products from research and development.

Government refuses to pay software usage fees	The NAVEDTRACOM shall abide by the policy regarding payment for software used to develop ICW, as stated in references (a) and (b), quoted here for convenience:
Government will not allow the payment of most kinds of software fees	"The Government shall not agree to pay royalties, recurring license or run-time fees, use tax, or similar additional payments for courseware, associated presentation programs necessary to interpret and execute the courseware, documentation, or associated training materials for ICW programs developed for or by DoD. "
Training activities may have to shop around	If the manufacturer of the software whose usage. is being contemplated for development and presentation of the ICW will not agree to these conditions, then software of another manufacturer who will agree to these terms must be used.
Ask NETPDTC to develop the ICW for them	Training activities may request (via their fictional commander and CNET) NETPDTC undertake development of their ICW project. A training activity is most likely to make such a request when:
Activity decides ICW is best and Project exceeds activity's ability	The training activity determines ICW is the best instructional methodology for the subject matter, and when it also concludes the probable sophistication, complexity, project duration, and course length of the resulting ICW is beyond its scope.
Ask Functional to arrange for contractor to develop ICW	Or, the training activity may request the functional commander to arrange for contractual development of the ICW. In this case, the training activity has already most likely contacted NETPDTC and learned it cannot undertake their ICW project at the time.
Activities may do the ICW project	Training activities may develop those ICW projects falling outside the scope of the above provisions if it desires.

Use of military standards, specifications and guidelines	At a minimum, consult and use, as appropriate, the standards, specifications and guidelines discussed in the preceding paragraphs, references (a) through (i), during the actual development and implementation of any ICW.

RESPONSIBILITIES

CNET	CNET has the following duties and responsibilities with respect to ICW.
Approve, Process and/or Rank	Approve and rank requirements for ICW projects. Approve and process: • The 3-year ICW plan • CNET Program Automated Tracking System (CPATS) documentation • Program Objective Memorandum (POM) • Budget submission
Budget and Oversight	Budget resources for schoolhouse-to-fleet ICW projects. Oversee those fleet-funded ICW projects assigned to NETPDTC.
CNET N55 assist CNET T2 on request	CNET N55 assists the Director of Shore/Technical Training (T2) in meeting the requirements of "functional commanders" (paragraphs below) by taking for action any resulting tasks CNET T2 forwards to CNET N55.
Functional Commanders	Each of the functional commanders has the following responsibilities and duties with respect to ICW.

Plan for ICW	Solicit information regarding their subordinate commands' ICW requirements. Forward information about proposed ICW development projects to NETPDTC, via CNET. Plan, program, and budget for the development of ICW projects and the implementation of requested ICW products. Receive and forward, from the training activities to NETPDTC, information about ICW under development, or completed and ready for use, for inclusion in the DITIS database.
Assist with developing ICW	Approve requests to ● Develop ICW not requiring, a Training Project Plan ● Approve ICW developed by subordinate commands, as required Submit requests for development of ICW to CNET that require preparation and submission of a Training Project Plan (TPP). Provide technical documentation and subject matter expertise for approved ICW development projects.
CNET N55 assist CNET T2 on request	CNET N55 assists the Director of Shore/Technical Training (T2) in meeting the requirements of "functional commanders" (paragraph below) by taking for action any resulting tasks CNET T2 forwards to CNET N55. Final approval of all such forwarded actions rests with CNET T2.
NETPDTC	NETPDTC is assigned the following responsibilities and duties with respect to ICW.

Clearinghouse for ICW matters	Act as NAVEDTRACOM clearinghouse for ICW to include: • Receive all requests and recommendations for ICW development; review for appropriateness of application and to avoid duplication. • Develop ICW that is not under development by either a NAVEDTRACOM functional commander/training activity or contractor, or as directed by CNET. • Inform DITIS, as required, of new ICW efforts and completed ICW projects. • Recommend development priority for ICW projects under its cognizance.
Prepare ICW Project/Funding documents for CNET's use	Prepare the following ICW project documentation for CNET review and approval: • The 3-year ICW plan • CPATS • POM • Budget Submit to CNET POM resource requirements for planned projects via CPATS Develop joint funding agreements with other agencies having common interests in ICW projects that fall under its cognizance.
Provide ICW Assistance to NAVEDTRACOM	**NETPDTC,** with its years-of experience in developing ICW and in monitoring current ICW technology, is well situated to assist training activities in a variety of ways--on an as-requested basis. It can:
Recommend	Recommend hardware, authoring, and software standards for NAVEDTRACOM ICW.

Coordinate	Coordinate production and delivery of ICW with other Navy commands for in-house, other training activity, or contractor-developed packages according to provisions of references (a), (b), (c), and (d).
Be the expert	Provide instructional design expertise for an ICW development effort when requested by the training activity.
Transition ICW	Research, develop, and transition ICW that meets a training requirement into appropriate sites.
Implement	Provide technical assistance to functional commanders for implementation of ICW products.
Complete	Provide technical assistance to fictional commanders by helping them to complete any taskings resulting from requirements of *functional commanders paragraphs.